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ABSTRACT

Fifty managers and leaders of business and industry participated in a 2-year qualitative study to identify the elements of organizational culture (OC) that were most salient and potent in their judgment. These discussions provided the foundation for developing a multi-scale, self-administered survey of organizational culture (SOC). The SOC was administered by insider-managers to 492 people in 8 organizations, representing both public and private sectors in business and industry. Measures of job satisfaction and organizational commitment, and empirical indicators of organizational performance were taken concurrently. As an instrument, the SOC demonstrated acceptable or better levels of: (1) internal consistency of scales, (2) scale independence, (3) discriminant validity in relation to job satisfaction and organizational commitment scales administered concurrently, and (4) convergent validity in relation to organizational performance measures taken concurrently. As an approach to studying OC, the findings suggest that: (1) leaders and managers were in agreement with the OC dimensions identified by their peers, (2) leaders and managers were in agreement with the findings produced by the SOC methodology, and (3) the SOC methodology demonstrates sensitivity in several ways including greater between than within organization variance in all studies, and high correlations with the judgments of the insider-managers and leaders. Thirty-four references are listed and 7 tables present study information. (Author)

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Can questionnaires measure culture:

Eight extended field-studies.

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Abstract

Fifty managers and leaders of business and industry participated in a two year qualitative study to identify the elements of organizational culture (OC) that were most salient and potent in their judgment. These discussions provided the foundation for developing a multi-scale, self-administered survey of organizational culture (SOC). The SOC was administered by insider-managers to 492 people in eight organizations, representing both public and private sectors in business and industry. Measures of job satisfaction and organizational commitment, and empirical indicators of organizational performance were taken concurrently. As an instrument, the SOC demonstrated acceptable or better levels of: (a) internal consistency of scales, (b) scale independence, (c) discriminant validity in relation to job satisfaction and organizational commitment scales administered concurrently, and (d) convergent validity in relation to organizational performance measures taken concurrently. As an approach to studying OC, the findings suggest that: (a) leaders and managers were in agreement with the OC dimensions identified by their peers, (b) leaders and managers were in agreement with the findings produced by the SOC methodology, (c) the SOC methodology demonstrates sensitivity in several ways including greater between than within organization variance in all studies, and high correlations with the judgments of the insider-managers and leaders.

Can questionnaires measure culture:

Eight extended field-studies.[1,2,3]

Robert W. Tucker

Walt J. McCoy

Abstract

Over 50 managers and leaders of business and industry were engaged in discussions and interviews over a two year period to identify the important elements of organizational culture (OC). These discussions provided the foundation for developing a multi-scale, self-administered survey of organizational culture (SOC). The SOC was administered by insider-managers to 492 people in eight organizations, representing both public and private sectors in business and industry. Measures of job satisfaction and commitment, and empirical indicators of organizational performance were taken concurrently. While each study had a different organizational focus, the common focus was to examine factors relating to the validity and feasibility of assessing OC via an objective instrument. Psychometric standards of adequacy for the instrument, consistent evidence of convergent and discriminant validity, and consistent evidence of clinical sensitivity suggest that the SOC is a valid and cost-effective tool for assessing the elements of OC deemed significant by professional managers and leaders.

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[1] We appreciate the help of Joe Gallaghan, Norm Hoffman, Tom Hutchinson, Charlie Reeves, Deborah Spence, Becky Tucker, and Sandra Wise in surveying organizations and contributing to the understanding of organizational culture. We also thank many unnamed managers at Allied-Signal, the cities of Phoenix and Tempe, Honeywell-Bull, IBM, Intel, McDonnell-Douglas, Motorla, the State of Arizona, and other organizations for their assistance in identifying the dimensions of OC in their professional lives.

[2] This research was supported in part by the University of Phoenix and the University of Nebraska at Omaha. We thank Abu Shaharier of the University of Phoenix for his assistance in data analysis.

[3] This is a working draft. Comments are invited care of either author: University of Phoenix, 4615 E. Elwood St., Phoenix, Arizona, 85040, (602) 893-8386; University of Nebraska at Omaha, CBA 508D, Omaha, Nebraska, 68182-0048, (402) 554-2784.

Can questionnaires measure culture:

Eight extended field studies.

This paper provides an interim report on eight studies which are part of a research program to develop and validate an instrument to measure OC across a variety of organizational settings. In cases where the conceptual ground to be measured is well-defined and stable, the steps involved in validating an instrument are more-or-less prescribed by measurement theory (e.g., Campbell & Fiske, 1979; Cronbach, 1971). However, in view of conceptual and practical issues identified below, the focus of these studies extends to refining the construct of OC by involving leaders, managers, and workers in the process of identifying dimensions, examining findings, and suggesting directions for further study.

We began our formal studies of organizational culture (OC) two years ago --a time when the interest in research based on culture variables appeared to have declined in contrast with the early part of this decade. Some of this decline may have had to do with the lack of rigor with which the construct of OC has been developed and applied. Some may have been prompted by the problems associated with assessing OC in the ordinary contexts encountered in business and industry. Yet, our personal experiences as leaders and managers in organizations suggest to us that OC is a significant explanatory construct in organizational behavior, development, and change. We think it may be causally associated with key aspects of individual and group performance, and may be an important element in determining perceptions, feelings, and attitudes.

Status of OC as a Construct. To determine if OC is an important explanatory force in organizational life, work remains in several areas:

1. The substantive measures of OC, in addition to being difficult to implement, have tended to derive from formal cultural anthropological perspectives, rather than the applied perspectives of the leaders, managers, and workers in business and industry.

This is less a criticism of the formal anthropological perspective than an expression of concern about the fact that the wisdom of experienced working professionals is under-represented in framing inquiry into territory which, in a very real sense, is better understood by them than by those of us whose perspectives are more academic or scientific.

2. OC needs more clarity, conceptual and empirical groundedness, and consistency in use, all of which are traditional marks of constructs that have weathered the effects of a broad base of empirical study, repeated application and feedback in organizational contexts, and vigorous debate among researchers and practitioners. These processes will tend to enhance the theoretical attributes of a construct--such as precision, clarity, and verisimilitude--as well as its practical utility for understanding, predicting, and changing organizational behavior.

3. The central elements, attributes, and relations of OC need to be more sharply defined and studied. By definition, OC encompasses all shared meaning in the organization, but there is no reason to believe that all shared meaning contributes equally to organizational processes and outcomes. Cultural issues surrounding incentives may be more salient than those surrounding the celebration of birthdays.

4. Since very little is understood about the central elements of OC, or their attributes and relations, it follows that very little is understood about the generalizability of these elements or their patterns of relations. There is no systematic evidence to suggest whether anything learned about the culture of one organization will be durable within that organization, or will be generalizable to another organization.

5. While there is still visible interest in OC, the few existing means of measuring it tend to be either simplistic and lacking in evidence of either technical or functional

validity, or intrusive and complex in ways that make them difficult to administer in most organizations.

Definitions of OC. OC is broadly defined as the values, beliefs, and expectations shared by the members of an organization (e.g., Pettigrew, 1979; Pascale & Athos, 1981; Schein, 1985). Other definitions focus on behavioral regularities (e.g., Van Maanen, 1979), guiding "philosophy" (e.g., Ouchi, 1981), rules of the game (e.g., Schein, 1968), and the feeling induced by physical and dynamic factors in the organization (Tagiuri & Litwin, 1968). There are good reasons to resolve these points of dissimilarity and incongruence (Tucker & McCoy, 1988a). Not only is it risky to compare the findings of different studies that use the same terminology to explore substantially different ideas, but it is difficult to conduct meta-analyses and other forms of accumulating information from multiple studies unless the conceptual focus is relatively sharp. Of concern to us is the possibility that practitioners will lose interest in OC because of its unclear formulation. Without practitioner involvement there is no opportunity for constructive interplay between practitioners and researchers.

Despite the above problems, the history of social concepts is generally one of evolution in use as opposed to strict definition. An answer to the question, "What is there to mean by 'organizational culture,'" is not to be found in Webster's (or in Schein), but in the process of mapping out the empirical and conceptual relations between OC and other concepts, and by determining the attributes of OC as it assumes relations with other concepts. What will refine the concept of OC is, we think, a great deal more investigation into its central meanings in organizational life, and the active exchange of information among theoreticians, researchers, and practitioners.

Central issues in OC. While there is some consensus that OC begins with the founder's values, beliefs, and attitudes --including, perhaps, unconscious dispositions-- as reflected in his or her actions (Schein, 1985; Levinson, 1972), there has been little

empirical study and correspondingly little consensus developed as to the mechanisms by which OC is determined, embedded, transformed, caused to evolve (or devolve), sustained in difficult times, or maintained in ordinary circumstances. In particular, we are interested in what we will call "critical issues" in OC --actions or events that account for disproportionate variation in explaining the culture of an organization. For example, some students of OC suggest that certain organizational documents --such as mission statements-- are significant forces in shaping culture. In our experience, mission statements are a minor, often an insignificant, force. In contrast, our experience suggests that behavioral fidelity to the mission is a critical issue; i.e., it accounts for a great deal in shaping the shared perceptions of the organization's members. We are investigating this and many other potential issues for their contribution to OC.

Qualitative and quantitative measures of OC. Aside from the informal "culture assessment instruments" that appear in the popular literature, studies of OC have tended to employ qualitative methodologies such as in-depth interviews, ethnographic observation, participant interaction, and analysis of artifacts. The reasons for preferring qualitative over quantitative methods of measurement vary, but they often relate to a concern for the conceptual and methodological difficulties of studying, and especially measuring, values, value change, and expectations in organizational settings (e.g., Evered & Louis, 1981; Schein, 1985; Tucker & McCoy, 1988b). Others, such as Clark (1985) and Lincoln (1985) argue that it is epistemologically unsound to assess socially constructed organizational phenomena by quantitative methods.

The difficulty of conceptualizing and measuring value change is clear in any context, but we do not agree that quantitative approaches to measuring OC are epistemologically unsound. The relationship between qualitative and quantitative methodologies in the study of OC is inherently complementary if the methodological

values that are maximized by each approach are weighed and adjudicated according to the needs of the particular context. Qualitative methods provide an opportunity to maximize the values of heurism, flexibility, adaptiveness, depth, and realism; whereas quantitative methods provide an opportunity to maximize the values of precision, systematization, repeatability, comparability, convenience, large scale, unobtrusiveness, and cost-effectiveness. None of these advantages are gratuitous, and any or all of them can be vitiated by a weak implementation. The advantages and disadvantages of qualitative versus quantitative methodologies are thoroughly addressed in many methods texts (e.g., Lincoln & Guba, 1985; Reason & Rowan, 1981), but a few central issues deserve mention here because they have direct bearing on the study of OC:

1. Qualitative methodologies are human resource intensive; it is generally not feasible for an ethnographic research team to study several organizations simultaneously. Many organizations are understandably reluctant to have in-depth observation of their business activities coincident with such observations in another business. Even in the absence of objections from organizations, there are seldom enough trained ethnographic researchers within a single project to allocate to several organizations for long-term, in-depth study.

2. It is often feasible to survey employees with paper and pencil instruments in settings where more in-depth methodologies are ruled out due to limitations of time, intrusiveness, human resources, or organizational policy. Many organizations are simply not receptive to intrusive and time-consuming qualitative methods. We have experienced many situations where the only two choices were to conduct the study with a questionnaire, or forgo the opportunity for research.

3. The very meaning of OC appeals to comparisons among organizations, but qualitative studies do not readily lend themselves to such systematic comparisons or meta-analyses. Siehl and Martin (1985) concluded that rigorous comparisons are made

difficult or impossible by the flexible, sometimes ad hoc, methodologies which comprise much of the strength of qualitative approaches. Although there are recognized approaches by which qualitative studies can be subjected to meta-analysis (e.g., Noblit & Hare, 1988), they may not produce robust comparisons.

4. OC is often studied as an independent variable for its potential relationship to organizational outcomes such as managing change, product quality, and productivity. Identifying the nature of these relationships is a significant part of the empirical grounding process by which the meaning of the construct of OC is refined beyond its ordinary language parameters (Stinchcombe, 1968). Understanding these relationships is facilitated by large-scale systematic comparisons and is hindered, somewhat, by the idiosyncratic data common to qualitative studies.

Can Questionnaires Measure OC

Clearly there are benefits associated with assessing OC via questionnaires. The question becomes, "What would count as satisfactory evidence that OC is being adequately measured by an objective paper and pencil instrument?" We have divided this global question into several issues:

1. The OC instrument must meet appropriate psychometric standards of internal consistency, reliability, and content validity.

2. The OC instrument must demonstrate discriminant validity between culture and non-culture measures. In particular it must produce measures that distinguish between shared and individual meaning with respect to the respondent's relation to the organization, and it must measure shared meaning in a way that a respondent's feelings about his or her particular job will not significantly contaminate the culture measures.

3. The OC instrument must, on balance, demonstrate discriminant validity with respect to plausibly independent culture dimensions. It is a complex iterative process to establish discriminant validity with respect to concepts that are not well established

and which have few acceptable standards for comparison. Yet a useful OC instrument must play a constructive role in this process. It must be empirically sensitive to the logical dimensions of OC identified by the professional leaders and managers, yet it is very unlikely that all of the logical dimensions will survive empirical verification.

4. The OC instrument must demonstrate convergent validity by showing appropriate relations with other, independent, measures. As with discriminant validity, the process of establishing convergent validity in the absence of a comprehensive theoretical model to specify appropriate domains of convergence, is an iterative process that produces only tentative results in the early stages. To this point, our approach has been to examine, rather than specify, the points of convergence between our measures and independent measures of interest.

5. The OC instrument should be of some assistance in predicting certain features of organizational behavior, especially at the large group level which is most appropriate for the concept of culture.

These requirements are united under Messick's (1988) "key issues in validity studies" as the "interpretability, relevance, and utility of scores, the import or value implications of scores as a basis for action, and the functional worth of scores in terms of social consequences of their use" (p. 33).

Method

Samples

The Survey of Organizational Culture (SOC) was distributed over a six month period to 1,012 employees holding a variety of positions, managerial and non-managerial, in eight unrelated organizations. Overall, 488 employees responded to the surveys, for a response rate of 48%. The study with the largest number of distributed surveys also produced the lowest gross return rate (31%). This study used U.S. government franking to deliver and return surveys and it was not feasible to

assess the number of undelivered surveys to determine net response rate. When this organization is subtracted from the group, an overall response rate of 61% is obtained for the remaining seven organizations. The average response rate for the eight organizations (unweighted for sample size) was 72%. Seven of the studies employed a 55-item version of the instrument; one study employed a 40-item abbreviated version. The 55-item instrument used in six of the studies also contained from 10 to 15 items loosely considered the 'job characteristics' scale. Some of the content of these 10 to 15 items varied with the organization, but all versions contained a job satisfaction scale, and one version added a measure of organizational commitment. All of the items considered All of the studies were considered developmental and exploratory. Minor revisions of culture and job characteristics items were made when item analysis or patterns of comment from participants indicated such need. Overall, there were minor changes in wording, or changes from reversed to positive stems, in approximately 15% of the items from the first to the last study reported here. Table 1 lists the organizations under study and summarizes the general survey conditions for the eight studies reported on here.

Insert Table 1 about here.

Study 1: Rural hospital. A random sample of 256 employees and former employees were surveyed with the 55-item SOC. The hospital had recently undergone a major change in administrative personnel and organizational structure. A variety of subjective indicators of culture change were evident, both from an independent culture-theoretic perspective, and from the informed perspective of employees and managers who had experienced the former and the present administrative structure and leadership. Employees who had worked only under the old, only under the new, and

under both systems were surveyed. Staff and management of all major hospital employment categories were represented in the response pool. The 111 respondents represent a 48% response rate (corrected for undeliverable surveys) using an anonymous mail survey and return system for former employees, and an anonymous drop-box system for current employees.

Study 2: Non-profit HSO. A population of 96 current employees were surveyed with the 55-item SOC combined with a 15-item job characteristics scale. Six of the 15 items comprised a job satisfaction scale. This sample represents the organization's population less a few employees whose jobs do not bring them into direct contact with the organization (e.g., bus drivers). The HSO is comprised of two basic service programs which operate as more-or-less independent entities. Both culture-theoretic and the informed perspective of senior management suggested that the HSO was a "two culture" organization. The 55 respondents represent a 57% response rate using an in-box distribution system and an anonymous drop-box return system.

Study 3: Fortune-100 business equipment organization. A population of 12 employees was surveyed with the 55-item SOC combined with a 15-item job characteristics scale. Six of the 15 items comprised a job satisfaction scale. This small study was undertaken because it represents the entire force of a small sales unit undergoing some unusual cultural transformation. Half of the respondents have their work history in the parent organization --a culturally rich and prominent figure in computers and business equipment. The remainder of the respondents have their history in an organization that was taken over by the parent organization. The daughter organization --a major developer of specialized business communications systems-- was also large, successful, and culturally prominent, although its sales "philosophy" differed somewhat from that of the parent organization. The sales force from the daughter organization experienced difficulty adapting to the culture of the

parent organization, especially to those elements of the culture that directly affect sales. The 11 respondents represent a 92% response rate using an anonymous in-house distribution and collection system.

Study 4: Private metropolitan hospital. A stratified sample of 125 employees at a large metropolitan hospital was surveyed with the 55-item SOC combined with a 12-item job characteristics scale. Six of the 12 items comprised a job satisfaction scale. At the time of the survey the hospital's CEO had announced an organization-wide plan to increase the congruence between the hospital's mission statement and its daily practices. The plan was to include interactive workshops at all employee levels, and limited job sharing to bring disparate departments in contact with each other's problems and perspectives. Four subgroups were surveyed: nursing (management and non-management) and non-nursing (management and non-management). This survey is intended to be the pre-test in a pre/post quasi-experimental design looking at the differential effects of the interventions on employees holding management and non-management, and nursing and non-nursing positions. Surveys were returned by 105 respondents (84% response rate) via an anonymous drop-box system.

Study 5: Federal service agency. A sample of 435 federal employees was surveyed with the 55-item SOC combined with a 10-item job characteristics scale. Six of the 10 items comprised a job satisfaction scale. All of these employees hold one of two specialized technical positions in one of six federal regions spanning 50 states. The formal educational requirements for these positions will be substantially upgraded in 1990 in response to technical innovations being implemented within the agency. One result of the increased requirements is that a substantial portion of the work force must either secure additional education, on their own time, or prepare for early retirement or transition into other positions. The central office has advised the regional offices of their concern about the impact of the new requirements on the

culture of the agency and the morale of the agency employees. A task-force has been formed to deal with the organizational impact of the transition. Surveys were returned by 135 respondents (31% response rate, not corrected for undeliverable surveys) using U.S. government franking delivery and return with no follow-up reminders.

Study 6: Fortune 100 industrial organization. A sample of 20 industrial workers in two plants of an aeronautical parts division were surveyed with the 55-item SOC combined with a 10-item job characteristics scale. Six of the 10 items comprised a job satisfaction scale. This small study was undertaken as a pilot-test leading up to a full survey of the two plants that will take place later this year. It is anticipated that the two plants will merge their physical facilities in the near future, and that the merger will not go smoothly. One plant has its history with the parent organization while the other plant was acquired by the parent organization in 1984. The parent organization is well known for its strong cultural identity centering on a single ideological leader. A variety of signs indicate that the acquired plant has not yet relinquished its identification with its original ownership, and that the parent company may not have been sensitive to the impact of these cultural differences. In the interim, the parent organization has now been acquired by an even larger industrial conglomerate that appears to have displayed a similar lack of sensitivity to cultural differences. The surveys were administered and collected in groups of 10. The procedure protected anonymity, but more-or-less required that the survey be returned. The response rate was 100%.

Study 7: Public utilities company. A stratified random sample of 50 employees of a not-for-profit public utilities corporation were surveyed with a 40-item version of the SOC designed for classroom and experimental use. Stratification was designed to ensure representation from staff, supervisory, and management positions. The organization is stable and successful, but its present customer base has evolved

significantly from those designed to be served by its original charter, even though the board still represents the original customer base. Thirty surveys were returned (65% response rate) via an anonymous in-box procedure.

Study 8: State Department of Health Bureau. A population of 20 employees of a bureau in a state department of health were surveyed with a 55-item SOC combined with a 6-item job satisfaction scale and a 9-item organizational commitment scale. The study represented a convenient opportunity to gather data on a mid-level bureaucratic agency, although there were no particular issues under study. Nineteen surveys were returned (95% response rate) via an anonymous in-box procedure.

Measures

Practitioner involvement in qualitative development. In one sense OC can be defined in the terms of the prevailing theoretical model. In another sense it is correct to say that OC is whatever members of organizations generally agree that it is --this is a practical extension of Wittgenstein's (1958) "meaning as use" approach. In these studies we have leaned toward the "meaning as use" approach because of its potential to contribute to the realism and richness of the field, and because of the potential benefits that accrue to these contributions. These studies owe heavily to qualitative interview, observation, and dialogue methods in the early stages. Our objective was to learn what successful leaders and managers know about the culture of their organization, and about organizational culture in general. The process of working with business leaders and managers was wholly exploratory and formative. In many cases it involved teaching the leaders and managers formal models of OC and then working with them to apply, and at times, revise these models as they interpreted their experiences in relation to them. At times, the relationship was one of helping the leaders and managers formalize and articulate knowledge that was, until that time, wholly tacit. We cannot imagine a richer or more effective means of learning

practitioner's perspectives of OC. Table 2 lists and briefly describes the 13 dimensions of OC identified and agreed upon by the professional managers and leaders of organizations.

Insert Table 2 about here.

Once these qualitative perspectives were learned, they were integrated with extant culture-theoretic perspectives and operationalized into a multi-item, multi-scale survey of organizational culture designed to be administered to all levels of employees. Secondary survey measures came from a multi-item job characteristics survey which included a job satisfaction scale patterned after commonly identified items such as those discussed by Brayfield and Rothe (1951), Hackman and Oldham (1975), Price and Mueller (1981), and Sims, Szilagyi, and Keller (1976). (Other job characteristics items were adapted to the organizational context and are not discussed here). In the eighth study, a scale assessing organizational commitment based on the Organizational Commitment Questionnaire (OCQ) of Mowday, Steers, and Porter (1979) was added. Non-survey measures included employee turnover and absenteeism, job performance indices, organizational performance indices, organizational artifacts (e.g., mission statements), supervisor ratings, and interviews with managers. Not all measures were taken in all studies. Table 3 summarizes the measures taken in each study.

Insert Table 3 about here.

Development of culture variables and scales. The culture issues identified by leaders and managers, and the culture-theoretic variables identified from the empirical and interpretive literature on OC, were operationalized into the 55-item (or 40-item)

SOC. Responses to each item on the SOC are measured on two 5-point scales with anchors labeled: (1) strongly disagree, (2) disagree, (3) neither agree nor disagree, (4) agree, (5) strongly agree. The first scale is labeled 'actual' with instructions to respond to each item based on the present state of the organization; the second scale is labeled 'desired' with instructions to indicate how the respondent would like to be able to answer to the item. The 55-item, actual vs. desired, format yields 165 items for analysis (actual, desired, desired minus actual) independent of conceptual subscales.. Negatively worded stems varied from 13 (24%) to zero on different versions of the SOC.

Addition of job satisfaction and organizational commitment scales. The decision to assess job satisfaction concurrent with the assessment of OC was prompted by our skepticism about the extent to which respondents can make and answer questions based on distinctions between their attitudes and perceptions concerning their immediate jobs versus their attitudes and perceptions about their organization globally, and, further, to distinguish these two sets of attitudes and perceptions from related values they may hold as individuals. While the possibility of empirical conflation resulting from concept redundancy (Morrow, 1983) is real, it is also complex. Some individuals may be able to distinguish and act on issues which are not empirically separable by conventional means of measurement, while others may conflate concepts that are both logically distinguishable and empirically separable (see: Toulmin, 1972) in their representations of action. Constructs that rest on sound theoretical rationale, or have been suggested by those most familiar with a domain, should not be abandoned simply because they demonstrate high correlations with other constructs; neither should these correlations be dismissed without further study.

For similar reasons, it was decided that a general measure of organizational

commitment should be gathered concurrent with the SOC scales and a 9-item (all positive stem) version of the OCQ was added.

Instructions for culture vs. job characteristics items. One of the issues being examined in these studies is whether respondents can reliably and accurately shift their focus from answering questions about their particular job to answering questions that require a reflective "third-person" view of the global organization. The ability to perform this distinction is central to the logic of assessing culture via objective questionnaires, and is important in demonstrating that job satisfaction is not a significant contaminant in the appraisal process. Questions 1 through 55 (actual and desired) are administered with the following instructional set:

> "... Questions 1-55 apply to the organization, overall --they do not apply to your specific job. Please keep this in mind as you answer. Questions 56-70 are about your specific job."

This message appears immediately before the first question, and is summarized more briefly at the top of the second page of questions. The job characteristics items (questions 56 through 70) are preceded with the following instructional set:

> "The following questions apply to you and to your job, not to the organization, overall."

Since these items all appear on a single page, the instruction is not repeated.

Non-instrument measures of organizational function. Our ability to obtain independent measures varied from organization to organization. Our strategy was simply to obtain the information that: (a) each organization could easily produce, (b) the organization was willing to share in these studies, and (c) might be of theoretical or practical interest when examined in relation to the data obtained from the SOC. Ideally, these independent measures would be constructed in a way that facilitated direct comparisons between organizations. In fact, the conditions under which this

information was obtained, and the precision and scope of the information itself, varied considerably. For these reasons, the independent measures of organizational functioning are useful primarily for within group analysis, particularly to assess convergent and discriminant validity, and the overall usefulness and sensitivity of the instrument in identifying dynamic features of the organization known or suspected to be the case from independent measures.

Results

Preliminary Analyses

Two objectives framed the analyses of these studies. The first objective is to assess the technical and conceptual adequacy of the instrument as a measurement system. The second objective is to assess the value of the measurement system for its intended use. The results section in this paper will focus on the first objective.

Means and standard deviations. The means and standard deviations for the 'actual' and 'difference' ('desired' minus 'actual') scores for each of the 13 SOC subscales in each of the organizations are presented in Table 4. Means for 'desired' scores can be easily reconstructed by adding the 'difference' and the 'actual' score for each scale.

Insert Table 4 about here.

Of note for further analysis are the relatively large differences between the 13 scales, overall, when compared with the variation within each scale, across organizations. There is also a relatively large difference between organizations in their expressed desire for change. It looks, on the face of it, like there may be a split between public and private organizations along this dimension.

Internal Consistency

Estimates of the internal consistency of the SOC scales were calculated by coefficient alpha in all of the studies and item-analysis in five of the studies. Both tests were also performed on the job satisfaction and organizational commitment scales in studies where they were used.

Coefficient alpha. Table 5 lists the alpha coefficients for each SOC scale, all SOC items combined, and for the job satisfaction and organizational commitment scales. The internal consistency for most scales was well within an acceptable range. Equally encouraging was the general trend toward increased alpha coefficients and item-analysis correlations from the first to the last study.

Insert Table 5 about here.

Despite the clear logical relation, some scales and some items were only minimally responsive to customary methods to increase the alpha coefficient. Two items designed to measure an organization's balance of cooperative versus competitive internal structure, for example, produced alpha coefficients as low as 0.35 in one sample. Several limits on coefficient alpha were operative in these studies, including:

1. The number of items in each scale is relatively small, ranging from 2 to 12 with a mode and mean of 5 items. Ceterus paribus, the alpha coefficient is minimally sensitive to sample size, but can be significantly affected by the number of items in the scale as that number drops below 30. Controlled data in one study (Torabi, 1988) that produced alpha coefficients in the range of r = 0.94 with 30 items, produced coefficients of r = 0.90 with 18 items, r = 0.85 with 12 items, and r = 0.73 with 6-items. In these studies, full scale alpha coefficients were always above 0.90.

2. Negative item-stems generally result in lower alpha coefficients than do positive stems. In some cases in these studies, they showed pronounced lowering

effects. Some participants had difficulty responding to the negative transformation required when moving from the 'actual' to the 'desired' part of a negatively worded item (the 'desired' response on a negative item will generally be lower, indicating a desire for "less" of a negative factor). We have attempted to balance the risks of negative stems with the risks of all positive stems without, yet, finding an ideal medium short of abandoning the 'actual versus desired' response format.

3. Achieving a high alpha coefficient on a given scale requires that respondents' answers to items within a scale covary isomorphically. In cognitive terms, this requires that respondents perceive the items as closely related, ideally parallel, items appealing to the same facts, values, and considerations. We have found these links to be relatively easy to establish and measure in well developed domains of organizational domains (e.g., customer service) and difficult to establish and measure when the domain is a more subtle organizational construct (e.g., congruence between mission, policy, and practice). Preliminary analysis of problematic versus unproblematic measurement domains suggests that there may be an educational loading on some items and scales favoring the white collar professional. If so, the useful audience for the present versions of the SOC must be established.

4. There is theoretical reason to believe that those occupying greatly different levels and positions within an organization will perceive and define the same constructs somewhat differently. Seven of the studies surveyed at least three organizational levels. If respondents' perceptions vary according to position it presents additional considerations for the issue of internal consistency as well as the larger issues of construct definition and measurement. Even though an essential element of OC is "shared meaning," it may be shared much the same as it is in the larger culture --with substantial demographic, geographic, and ethnographic differences.

Split-half reliability. Split-half reliability coefficients were also calculated on the 55 'actual' and 55 'desired' SOC items for each study. In all studies the coefficient for the SOC scales was $r >= 0.90$. Since most of the SOC scales and the job satisfaction and organizational commitment scales contained fewer than 10 items, split-half statistics were not calculated on these scales. It was noted that the study with the lowest overall alpha coefficients was also the study in which prior knowledge suggested that respondents might have difficulty with the reading level and the general educational level presupposed by the SOC version administered to them.

Item-analysis. Item-analyses was performed on SOC scales with data aggregated from six of the studies. Table 5 shows the median item-analysis correlations for each of the 13 scales. These correlations, ranging from $r = 0.39$ to $r = 0.59$, suggest that the scales may be measuring relatively homogeneous underlying constructs.

Job satisfaction and organizational commitment scales. The 10 to 15 items focusing on job satisfaction and organizational commitment were independently subjected to alpha coefficient and item-analysis tests of internal consistency in those studies in which they were employed. Table 5 shows the median alpha and item-analysis statistics for each scale. As secondary test of the underlying homogeneity of the scales, factor analyses were performed on the job satisfaction scales in six studies and the organizational commitment scale in the eighth study. All of the job satisfaction studies yielded either a one or a relatively two factor solution using a principal components solution with varimax rotation. The highest eigenvalue for the second factor was 1.28 with the common variance explained by the second factor as 21.5%. Contrary to other studies (e.g., Mowday, Steers, & Porter, 1979; Price & Mueller, 1981), the 9-item organizational commitment scale yielded a two factor solution in the only study in which it was administered. The eigenvalue of the second factor was 1.32 with 14.6% of the common variance explained by the second factor. Also somewhat contrary

to these studies, the organizational commitment scale showed a correlation with the job satisfaction scale of $r = 0.85$ ($p < .001$). Factor analysis of the combined job satisfaction and organizational commitment scales did not yield clean factors to confirm these scales. On the limited basis of this single study, it does not appear the job satisfaction and organizational commitment scales are assessing distinct constructs.

Test-retest Reliability

Test-retest studies were not possible in all cases but were run with a subset of respondents in two of the studies. The test-retest reliability for the metropolitan hospital was $r = 0.84$, $p < .01$ over a three week period ($n = 10$). For the federal agency the test-retest reliability was $r = 0.73$, $p < .01$ over a four week period ($n = 10$). Both test-retest times are approximate and practical exigencies of each study diminished the precision with which this test should be conducted. Nonetheless, within the restrictions imposed by the limited sample size, the test-retest correlations are within acceptable standards (Anastasi, 1982). It might be desirable to repeat test-retest measures at more distant intervals. However, this strategy conflicts with the plausible expectations that at least some facets of the OC will change over relatively short periods, particularly with organizations in transition. To explore this statistic more thoroughly will require establishing one or more "semi-controlled" organizational environments, a situation that will in all probability have to await a fortuitous opportunity.

Construct Validity and "Meaning as Use" as Applied to Organizational Culture

The narrow sense of construct validity (CV) is addressed when evidence of the convergent, discriminant, and perhaps, the predictive validity of a measure is presented (e.g., Campbell & Fiske, 1979; Cronbach, 1971). In the broader sense, CV is addressed only when ordinary language and theory-based meaning are integrated via a broad and

representative base of applicable experimental, statistical, and dialogical techniques (cf. Messick, 1988: p.41).

The controversial and multi-perspectival nature of OC make it difficult to set out procedures which clearly count as evidence of CV. From our "meaning as use" perspective, a valid measure of OC is one which meets technical standards of reliability and internal consistency, demonstrates content validity, and shows a reasonable degree of correspondence with other measures and observations that members of organizations collectively define as OC.

One problem with the "meaning as use" approach emerges in early attempts to demonstrate CV. In the case of the SOC, there are no formal instruments or other standardized bases of observation and measurement against which the SOC can be assessed. The best that can be done is to demonstrate a network of clear inter-relations between the SOC and other indicators which, when taken together, establish a plausible case for the utility of the dimensions. At this early stage of development there is only scattered evidence to argue for the conceptual or empirical superiority of the SOC dimensions over the dimensions of some other model. However, there is stronger evidence to be presented when the argument shifts from definitions of OC to the clinical sensitivity and general usefulness of the SOC to significant elements of organizational life.

At present we are examining six of the eight studies for convergent and discriminant evidence of CV. Three of these studies are still acquiring data that will eventually address the question of predictive validity, and the next wave of studies will address predictive validity directly.

Evidence of Convergent Validity

Study 1: Rural hospital. This hospital had recently undergone a major change in administrative personnel and organizational structure leaving some of senior

management to question whether the changes affected OC and, if so, in what ways? Employees who had worked only under the old, only under the new, and under both systems were surveyed. In general, the SOC discriminated well on the expected dimensions of difference between those who had worked under each administrative system. Analysis of the various subsamples formed by key demographic variables (e.g., length of service, position) yielded findings generally consistent with expert judgment and expectations.[1]

Study 2: Non-profit HSO. The HSO is comprised of two basic service programs which operate as more-or-less independent entities. The informed perspective of senior managers as well as what might be predicted from known effects of organizational structure suggested that the HSO was a "two culture" organization. Generally, the results of the SOC supported these independent observations as well as some secondary expectations about differences in subpopulations formed by demographic variables.[2] There were no counter-trends in the findings.

Study 3: Fortune-100 business equipment organization. Respondents in this study were approximately evenly split between the acquiring and the acquired organization. According to the judgment of the managers representing each organization, both organizations have strong but significantly different OC. The SOC was sufficiently sensitive and discriminative to confirm the six predicted areas of difference while showing only two other marginal areas of difference which were agreed with in post hoc analysis, but which were not predicted. It was the judgment of the most involved manager that the SOC was an accurate mirror of the local organization's culture.

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[1] Analysis still in progress.

[2] Analysis still in progress.

Study 4: Private metropolitan hospital. This research is still in progress. At present, it awaits the posttest schedule. At the time of the pretest survey, the hospital's CEO had announced an organization-wide plan to increase the congruence between the hospital's mission statement and its daily practices. The manager who headed and conducted the survey process predicted that the OC being assessed in the pretest would show differential treatment according to position leading to different perceptions of the OC. Preliminary analysis of the pretest data support these judgments. Analysis of the various subsamples formed by key demographic variables (e.g., managerial level, nursing/non-nursing) yields findings generally consistent with expert judgment and expectations.

Study 5: Federal service agency. The central federal office as well as the senior manager in charge of this project has observed that the newly communicated requirements for educational upgrading has caused a split in the OC along the lines of present educational achievement. The SOC was sensitive to the dimensions identified by the senior manager and central administration. In general the SOC scale findings confirmed the manager's judgments and did not produce any results in conflict with expectations. Analysis of the data by subsamples formed by one key demographic variable was consistent with expert judgment and expectations.[3]

Study 6: Fortune 100 industrial organization. This study was undertaken as a pilot-test for a full survey to take place later this year. Two plants are likely to merge their physical facilities in the near future, and differences in OC may prevent a smooth implementation of the merger. The findings of this pilot-test are the most inconclusive of the eight studies. Item-analysis suggests that at least some of the respondents answered the questions randomly. Of the possible causes for this

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[3] Analysis still in progress.

occurrence, an inability to comprehend the reading level of many of the items seems the most likely. Whatever the cause, the lower internal consistency and inter-item correlations of the scales, when combined with the small sample size (n = 20), opens any conclusions drawn to question. We anticipate either a different version of the SOC, or a different method of administration to eliminate these problems in the full study.

Study 7: Public utilities company. This organization is stable and successful even though its present customer base has evolved from those intended to be served by the original charter and the board still represents the original customer base. The overall responses of the abbreviated (40-item) version of the SOC clearly reflected the schism in mission and confirmed insider judgments about its effects on organizational congruence. There were no unpredicted or contrary findings in the survey results.

Study 8: State Department of Health Bureau. This study was not conceived to contribute directly to evidence of convergent validity. It was undertaken to gather information from a state level bureaucratic setting to contribute to a data base comparing OC in public and private settings.

Correlations with organizational performance. Various performance measures such as turnover rates and efficiency ratings, were taken for the purpose of examining their relation to the SOC scales, the job satisfaction scale, and the organizational commitment scale. While these measures are under study at present, preliminary evidence shows a clear expected (negative) relationship between the difference scores (index of desired improvement) and job performance and a positive relationship between difference scores and turnover. Further study is required to confirm these preliminary findings.

When such correlations are in the direction predicted by specific theory --or more often, when they conform to the expectations of generalized axioms of modern

organizational development-- they are taken as evidence of convergent validity. A weakness in this approach, as it applies specifically to OC, is that there are few clear theoretical expectations concerning antecedent and consequent conditions related to OC variables. In this regard, demonstrated correlations of measures of OC with organizational processes are perhaps better viewed as exploratory than confirmatory findings. The empirical bases for such evidence is no more heartening. One might, for example, interpret a strong positive relation between measures of congruence in organizational communications and measures of productivity as limited evidence of convergent validity --a theoretically mediated inference. However, empirical support for the link is less than clear (e.g., Cotton, et al, 1988; Wagner & Gooding, 1987). We suggest reservation in taking such correlations as anything other than exploratory and discuss them here primarily out of convention.

Correlations with other measures. Correlations between the SOC scales and the job satisfaction and organizational commitment scale are in the ideal range (see Table 6). As discussed below, we expected, and found, correlations varying from negligible to moderate, depending on the conceptual nature of the scale. Ideally no SOC scale correlation would be consistently high over several scales. Within the limits imposed by the internal consistency of the various scales, and the tendency toward non-linearity for scales of psychological constructs, it appears that the SOC scales fall within ideal ranges. These findings should, in our view, be taken as necessary, but not sufficient, conditions establish convergent validity; they are also relevant to the issue of discriminant validity.

General discussion of evidence of convergent validity. Thus far, the SOC has demonstrated a pattern of convergence and relevance that we refer to as "clinical sensitivity." Provisionally, it appears to meet the following tests of convergence:

1. Key issues pertaining to OC as identified by insider-managers are reflected in the SOC profiles.

2. Predicted theoretical relations based on organizational dynamics and structure are similarly reflected in the SOC profiles.

3. Analysis of data grouped by key demographic variables reflects differences predicted by insider-managers.

4. Few unpredicted or unpredictable findings have been produced, and no profiles clearly counter to expectations or empirical findings have emerged.

On balance, the pattern of findings provides some evidence of convergent validity and, equally important at this early stage, it passes obstacles which often impede attempts at validation through the establishment of empirical and conceptual networks.

Evidence of Discriminant Validity

It is reasonable to expect that employees' perceptions and attitudes about their OC will be causally interrelated with their job satisfaction and organizational commitment. It is therefore plausible to expect that measures of OC will be related to measures of job satisfaction and organizational commitment. Given that the SOC attempts to measure several (at present 13) dimensions of OC, it is even more plausible that some of these dimensions will be related to job satisfaction and organizational commitment. However, if the SOC scales are to emerge as independent and useful constructs, they must demonstrate acceptable levels of independence from established constructs and their measures. At the correlative level of analysis, we have specified that the SOC scale correlations with job satisfaction and organizational commitment should be expected to vary from negligible to moderate. In addition, few if any of the moderate correlations should show clear isomorphic relations across multiple studies. In a previous report (Tucker & McCoy, 1988a) we studied the correlations between each SOC

scale and the job satisfaction instrument administered concurrently in three studies. Table 6 updates the data from the previous report with data from subsequent studies.

Insert Table 6 about here.

As Table 6 shows, the overall correlations bewteen each of the SOC scales and job satisfaction was in the low to moderate range. In appreciation of the typically high correlations among measurements of job characteristics taken at the same time, these correlations suggest that there is an acceptable level of independence between job satisfaction, organizational commitment, and most SOC scales. These data invite further study. Until more is known about the empirical attributes of OC it is difficult to partial correlation effects.

Another aspect of discriminant validity arises from the hypothesized relationships among the SOC scales. To the extent that the construct assessed by a given scale contributes to job satisfaction and organizational commitment, the 13 SOC scales should show a moderate correlation among themselves, mediated by their common contribution to those scales. This is potentially an aspect of convergent validity. Conversely, however, repeated attempts to identify organizational constructs that demonstrate independence (including discriminate validity) from each other have generally met with failure, especially when measured at the same time. Even established measures of job satisfaction and organizational commitment which sometimes pass tests of conceptual independence and discriminant validity (Brooke, Russell, & Price, 1988) do not always do so. The data from Study 8, for example, show a high correlation between job satisfaction and organizational commitment, suggesting that they are not independent constructs.

In contrast. the 13 SOC scales demonstrated the predicted degree of low to moderate intercorrelation both within and between studies. Table 6 lists these correlation coefficients. Note that the apparent exception to this claim pertains to the correlations between scales 1 and 3, and scales 2 and 3. These relatively high correlations are artifacts of common items between the scales. Some items were logically connected with more than one scale and were assigned to scales on the basis of this logical relation. When these common items are removed from the duplicate scales, the correlations fall to the middle of the distribution while retaining acceptable, although in some cases slightly lower, alpha coefficients for the scales.

The extent to which many of the 13 SOC scales do not correlate at high levels --combined with the other data confirming the reliability, consistency, and usefulness of the scales-- is a significant outcome. Preliminary factor analysis of the 55 SOC items for each of the seven studies employing the 55 item version have been performed. Using principal components extraction and orthogonal (varimax) rotation, from 11 to 14 factors with eigenvalues greater that 1.0 have been isolated. In general, these factors parallel the 13 conceptual scales, giving further support to their coherence and independence.[4]

Further Evidence of Discriminant Validity

Theoretically, OC is a phenomenon of organizations, as a whole, more that of groups within organizations. Individual perceptions of OC are based on the same public events, processes, artifacts, and other things of the environment around which expectations, values, and other forms of meaning develop (Csikszentmilalyi & Rochberg-Halton, 1981). To the extent that OC is based on public, sharable, phenomena, variations in perception within organizations can be expected to be

[4] Factor analytic studies are under way at the time this report is being written.

relatively small in relation to variations in perceptions of OC between organizations. Therefore, it is plausible to expect that instruments measuring OC will tend to show significantly less variance within organizations than between organizations; i.e., they will discriminate between unrelated and related populations.

To measure the ability of the SOC to discriminate between unrelated populations, one-way ANOVA's were calculated by organization for the overall SOC and for each of the 13 culture scales. Table 7 lists the results of the one-way analyses of variance.

Insert Table 7 about here.

The results suggest that the SOC is very sensitive to between organization differences and within organization similarities. In all 13 scales, the between organization variance was significantly higher than the within organization variance. For 12 of the 13 scales the differences were highly significant, $p < .0001$. Scale 9, 'Incentive/Motivation,' was less significant, $F(6,397) = 2.57$, $p < .019$. one-way ANOVA's were also run on the 13 'difference' ('desired minus 'actual') scales with comparable results.

Discussion

General Validity Issues

One way to organize discussion of a proposed new instrument is around Messick's Messick's five key validity issues. Messick's categories are broader than technical validity considerations, but they subsume the technical issues as necessary conditions.

Interpretability of scores. It is not surprising, nor should it be taken excessively to heart, that the professional managers and organizational leaders associated with these studies have found it quite easy to interpret the scales and scores of the SOC. While the scales were not developed by any of the managers conducting the research in

any of these eight studies, they were suggested in rough form by people having similar cultural identity and common professional background and work history. The SOC has the "inside track" on interpretability in virtue of its historical development.

Relevance of scores. Comments made about the interpretability of the SOC can also be made about its relevance, and for the same general reasons. Professional managers were asked to identify relevant dimensions of OC. To the extent that they performed their job well, the SOC reflects the successful manager's ability to perceive relevant dimensions of organizational life --a general attribute already demonstrated in successful managers.

Utility of scores. Information bearing on the utility of the SOC is preliminary and tentative, but, thus far, it is all positive. At this point the SOC is perceived as having utility by the experienced professional managers who have worked with it. In addition, its general clinical sensitivity as demonstrated by the close correspondence between the scale profiles produced by the SOC and the insider judgments of professional managers, is one form of evidence that it has utility in diagnosing several apparently distinct features of organizational life.

Value implications of scores for action, and social consequences of their use. It is premature to address these issues experimentally although we agree and have commented on the relationship between organizational values and stress (McCoy, 1987) and the boundaries between scientific decisions and social consequences (Tucker, 1978). Ideologically, the positive value dimensions identified by the SOC embody democratic principles, a topic which we will discuss in greater depth at the conclusion of these studies.

It is also encouraging to note that the dimensions of OC identified by professional managers and leaders show considerable correspondence with those developed in more theoretical contexts (e.g., Schein, 1985).

Work Remaining and Future Issues

More lies ahead than behind in the development of the SOC. The following issues are our priorities:

1. Inconsistencies and incongruities between the logical (conceptual) and empirical (statistical) scales of the SOC need to be resolved. We envision a resolution as neither excessively empirical or conceptual. Scales that capture significant meaning for practicing managers must continue to be explored, even in the absence of initial confirmatory factor analysis. On the other hand, strong empirical scales must be focused on, refined and interpreted.

2. Studies which have the potential to assess the predictive validity of the SOC need to be undertaken. Our preliminary studies suggest that the SOC may be useful in predicting and isolating the values surrounding common organizational outcomes such as turnover and performance. Of even greater interest is the potential of the SOC to predict the resilience of organizations against unplanned change.

3. The full potential of multitrait-multimethod studies needs to be explored as the cultural dimensions under study take stable operational form.

4. Educational, cultural, and language biases of the SOC need to be identified. There is preliminary evidence that the SOC is not suited to those with marginal language skills. It is also possible that the SOC is not suited to employees with low awareness of the overall organization.

5. The judgment of professional managers and organizational leaders needs to be sought with respect to the interpretation of these findings and suggestions for future directions of study.

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Table 1

Basic Survey Parameters for Eight Studies Reported

Organization Surveyed	Surveys Distributed	Distribution Method	Response Rate (%)	Population or Sample	Culture Survey Instrument[a,b]
Rural Hospital	256	Drop box & mail	48	population	55 item SOC
Metro. HSO	96	Drop box	57	population	55 item SOC; 15 item job characteristics
Fortune 100 (Sales)	12	Drop box	92	population[c]	55 item SOC; 15 item job characteristics
Metro Hospital	125	Drop box	84	sample	55 item SOC; 10 item job characteristics
Federal Gov't. Agency	435	Gov't. franking	31[d]	sample	55 item SOC; 10 item job characteristics
Fortune 100 (Industry)	20	Group meeting	100	sample	55 item SOC; 10 item job characteristics
Public Utility	50	Drop box	65	sample	40 item SOC
State Agency	20	Drop box	95	sample	55 item SOC; 6 item job satisfaction 9 item organizational commitment
	n = 1,012		M = 48		
(W/O Gov't. survey)	n = 577		M = 61		

[a] Each item has 'Actual' and 'Desired' response set for a total of 110 responses.

[b] Substantial revisions were made after the second and sixth studies.

[c] Total employees in local sales office.

[d] Response rate unadjusted for undelivered surveys.

Table 2

SOC Scales Derived From Manager Identified Cultural Issues

Scale	Scale Description
1. Orientation to Customers	How well are true customer interests reflected in organizational standards and practices?
2. Orientation to Employees	Same as above with respect to employees.
3. Orientation to Stakeholder	Combines community orientation with customer and employee orientation.
4. Impact of Mission	How (a) clearly disseminated, (b) valuable, (c) consistently practiced, and (d) durable is the mission?
5. Managerial Depth/Maturity	Is management proactive, stable, and long term oriented; or it is the converse?
6. Decision-Making/Autonomy	To what extent are decisions diffused downward to the lowest practical level of functional interaction?
7. Communication/Openness	How easily and completely does information flow (a) downward, (b) upward, (c) interactively?
8. Human Scale	To what extent is the organization structured around people and "family sized" work units?
9. Incentive/Motivation	What is the balance of organizational incentives and disincentives to fulfill the mission? Are positive efforts rewarded; are negative efforts rewarded?
10. Cooperation vs. Competition	What is the balance between cooperative and competitive elements in the organization? Is destructive competition rewarded?
11. Organizational Congruence	Overall, how integrated, consistent, and compatible is organizational image and reality, organizational theory and practice?
12. Performance Under Pressure	How well does the organization maintain its principles and practices under adverse conditions?
13. Theory-S/Theory-T	Is the organization oriented toward selecting or training employees?

Table 3

Concurrent Measures Taken in the Eight Studies Reported

Organization Studied	Measures								
	13 Culture Scales	Job Satisfaction	Organiz'l. Commitment	Turnover	Absenteeism	Productivity Indices	Performance Ratings	Organiz'l. Artifacts	Insider Judgment
Rural Hospital	X			X	X			X	X
Metro. HSO	X	X		X	X			X	X
Fortune 100 (Sales)	X	X			X			X	X
Metro Hospital	X	X		X		X	X	X	X
Federal Gov't. Agency	X	X		X	X	X	X	X	X
Fortune 100 (Industry)	X	X		X	X	X	X	X	X
Public Utility	X	X		X	X			X	
State Agency	X	X	X	X				X	X

Table 4

SOC Scale Means and Standard Deviations by Organization

	Combined Studies				Rural Hospital				Metropolitan HSO				Fortune 100 Sales			
	Actual		Des-Act[a]		Actual		Des-Act		Actual		Des-Act		Actual		Des-Act	
Scales	M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)
Culture																
1. Orientation to Customers	3.51	(.65)	1.03	(.62)	3.58	(.59)	1.07	(.66)	3.45	(.74)	1.06	(.60)	4.02	(.79)	.56	(.61)
2. Orientation to Employees	2.82	(.77)	1.64	(.86)	2.55	(.75)	1.99	(.94)	3.15	(.59)	1.31	(.72)	3.9*	(.63)	.65	(.31)
3. Orient. to Stakeholders	3.25	(.58)	1.17	(.59)	3.20	(.52)	1.36	(.68)	3.48	(.48)	.94	(.45)	4.05	(.60)	.53	(.40)
4. Impact of Mission	3.31	(.59)	1.05	(.60)	3.03	(.52)	1.35	(.71)	3.53	(.66)	.94	(.56)	3.61	(.55)	.56	(.35)
5. Managerial Depth	2.83	(.71)	1.43	(.74)	2.72	(.74)	1.66	(.83)	3.10	(.69)	1.18	(.63)	3.48	(.91)	.80	(.46)
6. Decision Level/Autonomy	2.84	(.82)	1.76	(1.05)	2.17	(.77)	1.95	(1.12)	2.49	(.82)	1.52	(.96)	2.82	(.90)	1.41	(1.00)
7. Communication/Openness	2.82	(.65)	1.35	(.75)	2.64	(.63)	1.57	(.90)	3.05	(.66)	1.37	(.66)	3.62	(.40)	.51	(.24)
8. Human Scale	3.27	(.59)	1.06	(.64)	3.07	(.60)	1.35	(.71)	3.43	(.59)	.92	(.58)	3.71	(.37)	.56	(.29)
9. Incentive/Motivation	2.87	(.67)	1.49	(.80)	2.77	(.66)	1.66	(.91)	3.05	(.54)	1.32	(.65)	3.38	(.68)	.75	(.37)
10. Cooperation/Competition	3.18	(.71)	1.20	(.75)	3.03	(.69)	1.43	(.80)	3.61	(.65)	.83	(.60)	3.73	(.65)	.58	(.34)
11. Organizational Congruence	2.87	(.71)	1.39	(.78)	2.54	(.70)	1.69	(.90)	3.26	(.66)	1.12	(.75)	3.64	(.73)	.53	(.36)
12. Behavior Under Pressure	3.15	(.69)	1.19	(.71)	3.12	(.67)	1.25	(.75)	3.26	(.66)	1.12	(.72)	4.14	(.57)	.32	(.36)
13. Theory-S/Theory-T	2.83	(.84)	1.58	(.92)	2.53	(.80)	1.89	(1.00)	2.83	(.87)	1.64	(.90)	4.00	(.61)	.48	(.40)
Job Characteristics																
14. Job Satisfaction	2.31	(.53)	----	---	----	---	----	---	3.30	(.62)	----	---	3.81	(.64)	----	---
15. Organizational Commitment	3.13	(.72)	----	---	----	---	----	---	----	---	----	---	----	---	----	---

[a] Absolute value of 'desired' minus 'actual' score.

Table 4, continued

SOC Scale Means and Standard Deviations by Organization

	Metropolitan Hospital				Federal Gov't. Agency				Fortune 100 Industry				State Agency			
	Actual		Des-Act		Actual		Des-Act		Actual		Des-Act		Actual		Des-Act	
Scales	M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)
Culture																
1. Orientation to Customers	3.71	(.59)	.91	(.56)	3.29	(.64)	1.19	(.63)	3.49	(.47)	.72	(.41)	3.24	(.71)	1.11	(.64)
2. Orientation to Employees	2.96	(.72)	1.59	(.75)	2.69	(.77)	1.66	(.88)	2.75	(.51)	1.46	(.72)	2.68	(.95)	1.66	(.86)
3. Orient. to Stakeholders	3.39	(.53)	1.13	(.46)	2.99	(.59)	1.26	(.62)	3.20	(.33)	.94	(.47)	3.13	(.76)	1.20	(.61)
4. Impact of Mission	3.41	(.52)	1.06	(.53)	3.47	(.53)	.86	(.54)	2.84	(.32)	1.09	(.43)	3.18	(.81)	1.16	(.42)
5. Managerial Depth	3.03	(.62)	1.29	(.67)	2.61	(.66)	1.55	(.73)	2.75	(.52)	1.21	(.68)	2.64	(.66)	1.63	(.58)
6. Decision Level/Autonomy	2.53	(.77)	1.69	(1.00)	2.13	(.84)	1.96	(1.06)	2.76	(.71)	1.16	(.89)	2.26	(.69)	1.47	(.86)
7. Communication/Openness	2.92	(.57)	1.22	(.64)	2.75	(.67)	1.41	(.75)	2.70	(.62)	1.27	(.69)	2.83	(.62)	1.20	(.48)
8. Human Scale	3.23	(.56)	1.10	(.58)	3.42	(.54)	.85	(.60)	3.14	(.52)	1.04	(.58)	3.10	(.68)	1.08	(.55)
9. Incentive/Motivation	2.91	(.69)	1.51	(.75)	2.78	(.70)	1.53	(.82)	2.76	(.46)	1.48	(.71)	2.90	(.84)	1.32	(.80)
10. Cooperation/Competition	3.25	(.63)	1.31	(.66)	3.03	(.72)	1.15	(.77)	3.08	(.59)	1.12	(.70)	3.00	(.81)	1.22	(.85)
11. Organizational Congruence	2.98	(.69)	1.38	(.67)	2.90	(.64)	1.34	(.73)	2.52	(.53)	1.38	(.64)	2.73	(.56)	1.31	(.51)
12. Behavior Under Pressure	3.17	(.62)	1.23	(.65)	3.04	(.74)	1.26	(.71)	3.14	(.53)	.95	(.59)	2.99	(.78)	1.19	(.77)
13. Theory-S/Theory-T	3.10	(.78)	1.43	(.79)	2.75	(.79)	1.55	(.90)	2.88	(.60)	1.33	(.77)	2.63	(.98)	1.76	(.98)
Job Characteristics																
14. Job Satisfaction	1.57	(.65)	----	---	1.77	(.71)	----	---	2.71	(.65)	----	---	3.34	(.56)	----	---
15. Organizational Commitment	----	---	----	---	----	---	----	---	----	---	----	---	3.13	(.72)	----	---

Table 5

Median Alpha Coefficients, Median Item Analysis Correlations,

and Number of Items in Scale

Scales	Median Alpha Coefficient	Median Item Analysis Correlations[a]	N[b]
Culture Scales			
1. Orientation to Customers	.82	.54	4
2. Orientation to Employees	.86	.57	4
3. Orientation to Stakeholders	.90	.59	10
4. Impact of Mission	.77	.49	5
5. Managerial Depth	.64	.39	4
6. Decision Level/Autonomy	.77	.43	2
7. Communication/Openness	.85	.56	5
8. Human Scale	.78	.44	5
9. Incentive/Motivation	.87	.56	6
10. Cooperation/Competition	.62	.36	2
11. Organizational Congruence	.83	.48	6
12. Behavior Under Pressure	.81	.52	4
13. Theory-S/Theory-T[c]	.89	.47	3
13a. 13 Scales Aggregated	.95	—[d]	55[e]
Job Characteristics			
14. Job Satisfaction	.84	.54	6
15. Organizational Commitment[f]	.89	.57	9

[a] Median of the item analysis correlations for items within each scale.

[b] Modal number of items in scale across 8 studies.

[c] Orientation toward selecting versus training employees (Tucker & McCoy, in press).

[d] Not meaningful statistic.

[e] 55 items 'Actual' and 55 items 'Desired' for each stem.

[f] Single study (Study 8).

Table 6

Correlations Between SOC Scales, Job Satisfaction, and Organizational Commitment: All Studies

Scales	1	2	3	4	5	6	7	8	9	10	11	12	13	14
SOC Scales														
1. Orientation to Customers	--													
2. Orientation to Employees	.47	--												
3. Orientation to Stakeholders	.43	.43	--											
4. Impact of Mission	.44	.47	.30	--										
5. Managerial Depth	.55	.62	.43	.41	--									
6. Decision Level/Autonomy	.28	.48	.23	.20	.44	--								
7. Communication/Openness	.43	.63	.38	.38	.59	.43	--							
8. Human Scale	.36	.55	.25	.56	.46	.32	.54	--						
9. Incentive/Motivation	.44	.67	.40	.42	.58	.41	.54	.50	--					
10. Cooperation/Competition	.43	.58	.36	.46	.51	.37	.56	.51	.57	--				
11. Organizational Congruence	.45	.74	.38	.53	.60	.45	.62	.61	.64	.61	--			
12. Behavior Under Pressure	.54	.53	.38	.40	.54	.26	.50	.47	.48	.46	.56	--		
13. Theory-S/Theory-T	.49	.63	.36	.47	.58	.38	.55	.49	.58	.52	.63	.51	--	
Job Characteristics Scales														
14. Job Satisfaction	.19[a]	.44	.17[a]	.31	.35	.18[a]	.35	.36	.48	.34	.43	.29	.30	--
15. Organizational Commitment	.58[b]	.38[b]	.61[a]	.76	.64[a]	.23[b]	.41[b]	.73	.43[b]	.51[b]	.34[b]	.60[a]	.79	.85

Unmarked correlations $p < .01$; [a] $p < .05$; [b] not significant.

Note[1]. N's range from 410 to 17; excluding Scale 15, N's range from 410 to 282.

Note[2]. Items from Scales 1 and 2, common to Scale 3, were removed for these calculations.

Table 7

One-Way Analyses of Variance for SOC Scales by Organizations

Scales	Between Groups SS	df	MS	Within Groups SS	df	MS	F-Ratio	F-Prob.
1. Orientation to Customers	14.05	6	2.34	160.36	404	.39	5.90	< .0001
2. Orientation to Employees	30.70	6	5.12	212.45	401	.53	9.66	< .0001
3. Orientation to Stakeholders	18.79	6	3.13	116.13	391	.30	10.55	< .0001
4. Impact of Mission	19.97	6	3.32	121.42	401	.30	10.99	< .0001
5. Managerial Depth	19.60	6	3.27	181.64	398	.46	7.16	< .0001
6. Decision Level/Autonomy	18.07	6	3.01	250.81	398	.63	4.78	< .0001
7. Communication/Openness	15.04	6	2.51	155.75	401	.39	6.45	< .0001
8. Human Scale	11.18	6	1.86	130.54	403	.32	5.75	< .0001
9. Incentive/Motivation	6.81	6	1.13	175.38	397	.44	2.56	< .0188
10. Cooperation/Competitition	18.98	6	3.16	185.33	400	.46	6.83	< .0001
11. Organizational Congruence	29.73	6	4.95	175.08	396	.44	11.21	< .0001
12. Behavior Under Pressure	13.39	6	2.23	180.97	404	.45	4.98	< .0001
13. Theory-S/Theory-T	33.27	6	5.54	259.36	408	.64	8.72	< .0001
14. Overall (55 items)[a]	2146.38	6	357.73	13225.40	336	39.36	9.09	< .0001
15. Overall (55 items)[b]	2170.59	6	361.76	13987.09	338	41.38	8.74	< .0001

[a] Includes some items common to two scales.

[b] Common items removed from scales.